

## How Compost Works: The Rotten Truth!

What is compost? It's simple really. Compost is rotted organic matter that can be used to enrich soil so that plants will grow better. When you read about compost in books on gardening, compost is defined as something created purposefully by the gardener. However compost is created all the time as one of the earth's natural processes. For instance, in the forest, dead leaves, pieces of bark, broken tree limbs, and the bodies of dead insects and animals fall to the forest floor



in a slow but constant shower. These large pieces dead matter rot over time to create a thick fluffy mulch-like material called detritus or duff.

This duff helps the forest in several ways. It acts like fertilizer by returning nutrients to the soil, retains moisture, protects the soil from erosion by both covering the bare soil and by slowing down the runoff of rainwater. During the winter it acts as a blanket to protect seedlings from harsh temperatures.

Well the compost that a gardener creates on purpose serves the same functions in the garden. It is a great safe organic fertilizer. Keeps your soil from eroding or drying out to fast, plus it acts to suppress weeds when applied thickly enough.

So what is garden compost made of and what is the process of creating it?

Compost can be made out of about any organic substance that doesn't contain harmful chemicals or attract unwanted animals such as rats and mice. Below are two lists, one of commonly composted materials and one of materials you should not put in a compost pile:

### Things You Can Compost Safely:

- Fruit and vegetable scraps
- Used tea bags, coffee grounds and paper coffee filters (unbleached ones)



- Eggshells and cardboard egg cartons
- Dryer lint
- Compostable dryer sheets (yes, they make them!)
- Black and white parts of newspaper
- Leaves and garden cuttings
- Weeds without seeds or a way to multiply such as invasive runners
- Turf (be sure and place it in pile grass side down or it will sprout)
- Sawdust from untreated wood ( should be aged several months)
- Old wood mulch
- Cow, horse, goat, or chicken manure (Note: horse, goat, and chicken manure must be aged before putting around plants. They are such strong fertilizers that they will burn plants if put on them too fresh. Chicken manure especially should be aged at least 6 months to a year before using around plants. Cow manure should also be aged some but isn't as strong as the others. )

### **Things to Avoid Putting in Compost Bin**

- Meat and bones (smell and attract vermin)
- Dairy products (smell and attract vermin)
- Colored slick paper such as advertisements or magazines
- Weeds with seeds or runners that can multiply
- Treated wood sawdust
- Yard or garden waste contaminated with pesticide or herbicides
- Dog, cat, or other pet waste. These can contain parasites harmful to animals and people. (unless your pets are goats, sheep, cows, horses, or chickens!)

Besides the raw organic materials listed above (in the first list of course), what else do you need to have in order to make compost? First, you need a place to put it. You will be creating either a compost pile, or will be putting your materials in a compost bin or bins. Compost bins are neater and take up less room in your yard so I prefer them. But if you have an unused corner of your yard or garden, you can simply pile the materials and let them rot.

A compost bin can be made of a variety of materials. Here are some ways to make them from different materials:

- Some people make temporary bins by just stacking some bales of straw in square that is a few bales high. The straw itself will slowly rot to become compost itself.
- For more permanent bins, you can take a length of woven fence wire and fasten the ends to make a circular bin.



- It is a good idea to have at least two bins close to each other. That way when “turning the heap” you can move the materials from one bin to the other so you always have a fresh pile and a pile that is closer to being finished. Some people like three bins next to each other, one fresh, one working but not finished, and one of finished compost.
- Some people make nice wooden bins from freight pallets or planks fastened into box shapes. Some are also designed by fastening hardware cloth or fence wire over a wooden frame.
- A door in the front allows for easy turning of the heap and removing the finished compost. It is also good to cover the compost heap to keep out excess rain and critters, but you don't want the bin airtight. It helps the compost to work faster if the bins are designed so plenty of air can get to the raw compost.
- You can also buy a variety of bins including round drum type bins that fit on a frame and can be rotated to quickly turn the compost.

Whether you have a compost pile, build a bin, or purchase one, there are some rules to follow to make good finished compost for using in your garden. Here are some of the most basic rules to consider:

- The pile or bin should be **at least** 3 feet wide, long, and deep (in other words 3 cubic feet). Anything smaller will not “heat up” enough (see next rule).

- A compost heap needs to “heat up” to work efficiently. Organic material rots because of the action of “decomposers”. This is a loose classification of organisms ranging from tiny bacteria and fungi to larger earthworms, insects, isopods, etc. All of these creatures have a role in breaking down complex organic matter into simpler substances. When a compost heap is first created, if stacked correctly, the microbial action of bacterial decomposers will increase so fast that the heap will literally heat up sometimes to a temperature of up to 140° or more! This heating process is important in that the heat will kill many of the weed seeds and soil pathogens that can cause problems with your compost making unusable in the garden.
- To make a compost heap heat up it is important to give your decomposing microbes a good mix of materials. You can think of this as the brown to green ratio or the carbon to nitrogen ratio. By that I mean that they need a mixture of high carbon organic waste, usually brown dead materials like fall tree leaves, shredded bark or wood, sawdust, etc. combined with fresh high nitrogen materials like grass clippings, green vegetable scraps, or “non-green” but high nitrogen sources like cow manure or blood meal.
- The ratio of carbon to nitrogen should be about 1:1 or 50 % nitrogen to 50% carbon. To do this stack your compost materials in alternating layers with a layer of green such as grass clippings, with a layer of brown such as fallen leaves. You may need to add some high nitrogen source such as manure or blood meal to get the heap “started” which means giving a boost of energy that will allow them to quickly start heating the pile. You can also buy commercially produced “Compost Starter”.
- In addition to alternate stacking of the pile, you need to make sure it has enough moisture. The rule I have always heard is that the material in the pile should be about as wet as a wrung out dish rag. You may need to spray your heap layers a little with a hose to get them to the right level of moisture. Don't get the heap too wet however. That can cause the heap to not get enough oxygen and “anaerobic” decomposition will start taking place, which is a very smelly unpleasant situation!
- Another thing compost microbes need to do their rotting work is plenty of oxygen. A fresh pile will have a lot of this. But as the microbes work, they use up the available oxygen, plus the pile settles and compacts. For that reason, you need to “turn the pile” every couple of weeks (more often if you want the pile to finish quicker). This means using a compost fork or

shovel and moving the materials from one pile to another or in some way disturbing the pile enough to add air to the materials.

- The last rule to keep in mind is that the pieces of organic matter in your heap should not be too large. For instance, a tree limb placed in your compost heap will take a long time to rot, but if you run the limb through a shredder, then the small pieces will rot much faster.